

WHAT IS CLAIMED IS:

1. A spacer grid for placing and supporting a plurality of longitudinal fuel rods in a nuclear reactor fuel assembly, comprising a plurality of inner strips intersecting each other to form a plurality of guide tube cells to receive guide tubes therein and a plurality of fuel rod cells to receive the fuel rods therein, with a plurality of mixing blades projecting upward from the inner strips at intersections of the inner strips; and a plurality of perimeter strips to encircle the intersecting inner strips, each of the perimeter strips comprising a plurality of unit strips, with a grid spring provided on each of the unit strips, the grid spring comprising:

a vertical opening formed at a central area of each of the unit strips;

a vertical support part extending vertically between central portions of top and bottom edges of the vertical opening; and

a fuel rod support part provided at a central portion of the vertical support part, the fuel rod support part being bent to have an outward rounded cross-section.

2. The spacer grid according to claim 1, wherein the vertical support part is bent at two steps, and the fuel rod

support part is bent to be equiangular with the fuel rods, thus accomplishing a uniform contact pressure distribution when the fuel rod support part is in contact with each of the fuel rods.

5        3. The spacer grid according to claim 1, wherein the unit strips of each of the perimeter strips comprise a plurality of unit intermediate strips to encircle the intersecting inner strips and a plurality of unit corner strips to form outermost corner cells of the spacer grid, each of the unit intermediate  
10 strips having a coolant flow guide vane and a guide tap on an upper edge thereof such that a plurality of coolant flow guide vanes and a plurality of guide taps are alternately arranged along an upper edge of each of the perimeter strips, and each of the unit corner strips having either a coolant flow guide  
15 vane or a guide tap on an upper edge thereof to complete an alternate arrangement of the coolant flow guide vanes and the guide taps, in cooperation with the unit intermediate strips.

20        4. The spacer grid according to claim 3, wherein each of the plurality of unit intermediate strips has two guide taps projecting downward at both corners on a lower edge of each of the unit intermediate strips, and each of the plurality of unit corner strips has a guide tap projecting downward on a lower edge of each of the unit corner strip.

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5. The spacer grid according to claim 3, wherein each of the coolant flow guide vanes is bent toward a center of the spacer grid, with a width of each of the guide vanes reducing from a position at which each of the guide vanes is initially bent, thus each of the guide vanes has a tapered shape, with a peak of each of the guide vanes being rounded.

6. The spacer grid according to claim 3, wherein each of the guide taps is bent toward the center of the spacer grid, and is rounded at a bent tip thereof to form an arc-shaped edge.